

07/10/2006
122-99

GGAGGTATAGGAGCTCTCTTCGATCTTACCAAACCAGGAGTCCGAAGATCTAAGGAGAGC
TGGGGGTTTGACTCCGAGAGCTCGAGCAGTCCCCAAGACCTGCTTGTACTCACGAGTTA
GACTCCACTCAGAGGCTGACTGTCTCCAGGGTCTACACCTCTAAGGGCGACACTGGGGCTC
AAGCAGACTGCCGTTTTCTATATGGGATGAGCCTTCACAGGGCAGCCAGTTGGGATGGGT
TGAGGTTTGGCTGTAGACATCAGAAACCCAAGTCAAATGCGCTTCAACCAGTAGAAAATT
CACCAGCCCGCAGAGCTAAGGTTGGGTGGACATTAGGGTTGGTTGATCCAGGAGCTCAAC
AGTGTCTCTGTAGCCCCAGCTCCTTCTGCCCCACCCACCATCTTCAGTGTGCTTCCTC
TCAAGGCCACAGCTGTAGTTGGCCAGGGGGCTTCATTATTTTTTGTCTCTGGGCAGTAG
GAGGAAGAGAATGAATGTCTCTCCATGGGTCTTCTTAGGAATGTGGGAACCTTTTCCAG
AAGTCTCTATGTCTTTTAGTTTGTGTTGGGTCACTTGCCCTTCTGAACCACTTCCTGAC
TCCTGGACAGGATGTGCACTGATGAGCTTAGCTTTGGGGATCTAATAGTGACTTTACAAA
GCCTCTTTGAGAAGGTGACATTGGAACCAAGGCTTGAGCAGACACAACAAAGATTGCAGG
GAGGGGCATTGCAGGTGGAGGAAACGGCACATGCAAGAGCCCTGCGTGGGAGTGAGCTTG
GTGTTTGGTCAATCAGTTGTGACAGCACACCGGGCCCTGTGACAGGCACAGCCTGGGCC
TGCTCTGTAGTATGACAGAGAGCCCTGGGAAGTTGTAGGTGGAGGAAAGACAGGTCATGA
CTAGGAAAAAAGCAATCCCTCTGTTGTGGGGTGGGAAGGAGGTTGCAGTGTGTGTGAGAG
AGAGACAAGACAGACAGACAGACACTTCTCAATGTTTACAAGATGTGGAGCCCTTGCCCG
AATGCTTCCAAATTTACGTAGTTCTGGAAAACCCCTGTATCATTTTTACTACTCAAAGA
AACCTCGGGAGTGTTTTCTCTGAAAGGTCATCAGGTTTTGACTCTCTGTGTCTCATTT
CTTCTTGCTGGTGGTGGTGTGTTGCTTGTCTCCAGGCCCTGTCCCGCATCTCTTGCCC
CTGCAGAGGGATGAGTGTGTGGGGCTCACGAGTTGAGGTTGTTTACAAGCAGATCTCT
TTGAGCAGGGCGCCTGCAGTGGCCTTGTGTGAGGCTGGAGGGGTTTCGATTCCCTTATGG
AATCCAGGCAGATGTAGCATTTAAACAACACACGTGTATAAAAGAAACCAGTGTCCGCAG
AAGGTTCCAGAAAGTATTATGGGATAAGACTACATGAGAGAGGAATGGGGCATTGGCACC
TCCCTTAGTAGGGCCTTTGCTGGGGGTAGAAATGAGTTTAAAGGCAGGTTAGACCCTCGA
ACTGGCTTTTGAATCGGGAAATTTACCCCCAGCCGTTCTGTGCTTCACTTGTGTTTACA
TCACTGCCTAAGATGGAGGAACCTTTGATGTGTGTGTTTCTTTCTCTCACTGGGCTCT
GCTTCTTCACTTCCTTGTCAAT

;intron=exon

GCAGAGAACAGCAGCAGCGACCAGAGGCAGGCCTGTA

A E N S S S D Q R Q A C

AGAAGCACGAGCTGTATGTGACGTTCCGAGACCTGGGCTGGCAG

K K H E L Y V S F R D L G W Q

;exon=intron

GTAAGGGGCTGGCTGG

GTCTGTCTTGGGTGTGGGCCCTCTGGCGTGGGCTCCACAGGCAGCGGGTGTGTGCTCA
GTCTTGTCTCTCATCTCTGCCAGTTAAGACTCCAGTATCAAGTGGCCTCGCTAGGGAAGG
GTACTTGGCTAAGGATACAGGG.....
.GGGAGCCAGCATGGGTGATGCCATTATGAGTTATTAGCCTCTCTGGCAGGTGGGCAAAC
CGAGGCATGGAGGTTTGTAAAGGTGAAGTGCAGTGTGTGACCACCTAGTGGGGTAGAG
CTGATGATTGCCTCACACCGGAGCTCCTTCTGTGCGCGTCTGTCCAGAAGACACAGC
CATGGATGTCCATTTTAGGATCAGCCAAGCCCCGTCTGTCTTCAATTTTATTTTATGT
TTTTTTAGAAATGGGGTCTTGTCTGTGTCACCCAGGCTGGGTGCAGTGGTGTGATCATAGC
TCACCGCAGCTTTGACGCCGTCTTCCCACTCAGTCTACTAAGCTTGGACTATAGGCCAAG
ACTATAGAGTGGTCCTTCTTTCCATTCTTTTGGGACCATGAGAGGCCACCCATGTTTCT
GCCCCGTGCTGGGCCCTGCTGCTCAGAAGGCATGGTCTGAGGCTTTACCTTGGTGTGAG
CCTTCGTGGTGGTTTCTTTCAGCATGGGGTTGGGATGCTGTGCTCAGGCTTCTGCATGGT
TTCCACACTCTCTTCTCTCTCTCAG

;intron=exon

FIG. 1A-1

810,560
07/16/92

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GACTGGATCATCGCGCCTGAAGGCTACGCCGCCT
D W I I A P E G Y A A
ACTACTGTGAGGGGGAGTGTGCCTTCCCTCTGAACTCCTACATGAACGCCACCAACCACG
Y Y C E G E C A F P L N S Y M N A T N H
CCATCGTGACGACGCTG
A I V Q T L
;exon=intron

GTGGGTGTACGCCATCTTGGGGTGTGGTCACTGGGCCGGGC
AGGCTGCGGGGCCACCAGATCCTGCCTCCAAGCTGGGGCCTGAGTAGATGTGAGCCC
ATTGCCATGTGACTGTTTTGGGGGCCCTTGGCGCGTTAAAAAAAATCAAAAATTGTA
CTTTATGACTGTTTGGTATAAAGAGGAGTATAATCTTCGACCCTGGAGTTCATTTATTT
CTCCTAATTTTAAAGTAATAAAAGTTGTATGGGCTCCTTTGAGGATGCTTGTAGTATT
GTGGGTGCTGGTTACGGTGCCTAAGAGCACTGGGGCCCTGCTTCATTTTCCAGTAGAGGA
AACAGGTAAACAGATGAGAAATTTCACTGAGGGGCACAGTGATCAGAAGCGGGCCAGCAG
GATAATGGGATGGAGAGATGAGTGGGGACCCATGGGCCATTTCAAGTTAAATTTCACTCG
GGTCACCAGGAAGATTCCATGTGATAATGAGATTAACGTGCCAGTCACGGCGACACTCA
GTAGGTGTTATTCCTGCTCTGCCAACAGCAACCATAGTTGATAAGAGCTGTTAGGGATTT
TGTCTTTTGGCTTAGAATCCAAGGTTCAAGGACCTTGGTTATGTAGCTCCCTGTCATGAA
CATCATCTGAGCCTTTCCTGCCTACTGATCATCCACCCTGCCTTGAATGCTTCTAGTGAC
AGAGAGCTCACTACCAGGACTACTCCCTCCTTTTCAATTTAGTAATCTGCCTCCTTCTTTTC
TTGTCCCTGTCTGTGTGTTAAGTCCCTGGAGAAAAATCTCATCTATCCCTTTTCAATTTGAT
TCTGCTCTTTGAGGGCAGGGGTTTTTGTCTTTGTTTGTGTTTTTAAAGTGTGTTTTTC
CAAAGCCCTTGCTCCCTCCTCAATTGAAACTTCAAAGCCCTCATTGGGATTGAAGGTCC
TTAGGCTGGAAACAGAAGAGTCTCCCAACCTGTTCCCTGGCCTGGATGTGCTGTGCTG
TGCCAGTATCCCTGGAAGGTGCCAGGCATGTCTCCCGGCTGCCAGGGGACACATCTCT
ATCCTTCTCCAACCCCTGCCTTCATGGCCCATGGAACAGGAGTGCCATCGCCCTGTGTGC
ACCTACTTCCATCAGTATTTTACCAGAGATCTGCAGGATCAAAGTGAATTTCTCCAGGGAT
TGTGAAATGATGCGATTGTGGTCACTGTTTAAAAGGGGGCACTGTCTTCTAGAGAGTCTCT
GATGAAATGCTTCCAGAGGAAATGAGCTGATGGCTGGAATTTGCTTTAAATCATTCAAG
GTGGAGCAGGTGGGGAAGGGTATGGATGTGTAAGAGTTTGAATTTGTCCATCATAAAATG
TGTA AAAAGCATGCTGGCCTATGTGAGCAGTCACAGCCTGGAGGTGGTAACAGAGTGCCA
GTCATGATGCTCAAGCCTGGCACCTACAGTTGCTGGAAACCCAGAAGTTTACAGTTGAA
AACAACAGGACAGTGGAATCTCTGGCCCTGTCTTGAACACGTGGCAGATCTGCTAACACT
GATCTTGGTTGGCTGCCGTGAGCTTAGGTTGAGTGGCGGTCTTCCCTTAGTTTGTCTTAGT
CCCCGCTATTCCCTATTGTCTTACCTCGGTCTATTTTGCTTATCAGTGGACCTCACGAGG
CACTCATAGGCATTTGAGTCTATGTGTCCCTGTCCACATCCTCTGTAAGGTGCAGAGAA
GTCCATGAGCAAGATGGAGCACTTCTAGTGGGTCCAAGTCAGGGACACTATTACAGCAATC
TACAGTGCACAGGGCAGTTCCCCAACAGAGAATTACCTGGTCTGAATGTGCGGATCTGGC
CCCTTCCCTTCCCCACTGTATAATGTGAAAACCTCTATGCTTTGTTCCCTTGTCTGCAAA
ACAGGGATAATCCCAGAACTGAGTTGTCCATGTAAAGTGCTTAGAACAGGGAGTGCTTGG
CTTGGGGAGTGTACCTGCAGTCATTCAATTATGCCAGACAGGATGTTTCTTTATAGAAA
CGTGGAGGCCAGTTAGAACGACTCACCGCTTCTCACCAGTCCCATGTTTTGGTGTGTGT
TTCAG

;intron=exon

GTCCACTTCATCAACCCGGAACGGTGCCCAAGCCCTGCTGTGCGCCACGCAGC
V H F I N P E T V P K P C C A P T Q
TCAATGCCATCTCCGTCTCTACTTCGATGACAGCTCCAACGTCATCCTGAAGAAATACA
L N A I S V L Y F D S S N V I L K K Y
GAAACATGGTGGTCCGGGCCTGTGGCTGCCACTAGCTCCTCCGAGAATTC
R N M V V R A C G C H

FIG. 1A-2

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      10      20      30      40      50      60
GGTGC GGGCCCGGAGCCCGGAGCCCGGTAGCGCGTAGAGCCGGCGCGATGCACGTGCGC
                                     M H V R
      70      80      90     100     110     120
TCACTGCGAGCTGCGGCGCCGCACAGCTTCGTGGCGCTCTGGGCACCCCTGTTCTGCTG
S L R A A A P H S F V A L W A P L F L L
      130     140     150     160     170     180
CGCTCCGCCCTGGCCGACTTCAGCCTGGACAACGAGGTGCACTCGAGCTTCATCCACCGG
R S A L A D F S L D N E V H S S F I H R
      190     200     210     220     230     240
CGCCTCCGCAGCCAGGAGCGGGGAGATGCAGCGCGAGATCCTCTCCATTTTGGGCTTG
R L R S Q E R R E M Q R E I L S I L G L
      250     260     270     280     290     300
CCCCACCGCCCGCGCCCGCACCTCCAGGGCAAGCACAACCTCGGCACCCATGTTTCATGCTG
P H R P R P H L Q G K H N S A P M F M L
      310     320     330     340     350     360
GACCTGTACAACGCCATGGCGGTGGAGGAGGGCGGGCGCCCGCGCCAGGGCTTCTCC
D L Y N A M A V E E G G G P G G Q G F S
      370     380     390     400     410     420
TACCCCTACAAGGCCGTCTTCAGTACCCAGGGCCCCCCTCTGGCCAGCCTGCAAGATAGC
Y P Y K A V F S T Q G P P L A S L Q D S
      430     440     450     460     470     480
CATTTCTCACCAGCGCCGACATGGTCATGAGCTTCGTCAACCTCGTGAACATGACAAG
H F L T D A D M V M S F V N L V E H D K
      490     500     510     520     530     540
GAATTCTTCCACCCACGCTACCACCATCGAGAGTTCCGGTTTGATCTTCCAAGATCCCA
E F F H P R Y H H R E F R F D L S K I P
      550     560     570     580     590     600
GAAGGGGAAGCTGTACGGCAGCCGAATTCCGGATCTACAAGGACTACATCCGGGAACGC
E G E A V T A A E F R I Y K D Y I R E R
      610     620     630     640     650     660
TTCGACAATGAGACGTTCCGGATCAGCGTTTATCAGGTGCTCCAGGAGCACTTGGGCAGG
F D N E T F R I S V Y Q V L Q E H L G R
      670     680     690     700     710     720
GAATCGGATCTCTTCTGCTCGACAGCCGTACCCTCTGGGCCTCGGAGGAGGGCTGGCTG
E S D L F L L D S R T L W A S E E G W L
      730     740     750     760     770     780
GTGTTTGACATCACAGCCACCAGCAACCACTGGGTGGTCAATCCGCGGCACAACCTGGGC
V F D I T A T S N H W V V N P R H N L G
      790     800     810     820     830     840
CTGCAGCTCTCGGTGGAGACGCTGGATGGGCAGAGCATCAACCCCAAGTTGGCGGGCCTG
L Q L S V E T L D G Q S I N P K L A G L
      850     860     870     880     890     900
ATTGGGCGGCACGGGCCCCAGAACAAGCAGCCCTTCATGGTGGCTTCTTCAAGGCCACG
I G R H G P Q N K Q P F M V A F F K A T
      910     920     930     940     950     960
GAGGTCCACTTCCGCAGCATCCGGTCCACGGGGAGCAAACAGCGCAGCCAGAACCGCTCC
E V H F R S I R S T G S K Q R S Q N R S
                                     * * * * *
      970     980     990     1000     1010     1020
AAGACGCCCAAGAACCAGGAAGCCCTGCGGATGGCCAACGTGGCAGAGAACAGCAGCAGC
K T P K N Q E A L R M A N V A E N S S S
      * * * * *

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FIG. 1B-1 OPI CDNA

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1030      1040      1050      1060      1070      1080
GACCAGAGGCAGGCCTGTAAGAAGCACGAGCTGTATGTCAGCTTCCGAGACCTGGGCTGG
D Q R Q A C K K H E L Y V S F R D L G W
1090      1100      1110      1120      1130      1140
CAGGACTGGATCATCGCGCCTGAAGGCTACGCCGCTACTACTGTGAGGGGGAGTGTGCC
Q D W I I A P E G Y A A Y Y C E G E C A
1150      1160      1170      1180      1190      1200
TTCCTCTGAACTCCTACATGAACGCCACCAACCACGCCATCGTGCAGACGCTGGTCCAC
F P L N S Y M N A T N H A I V Q T L V H
1210      1220      1230      1240      1250      1260
TTCATCAACCCGGAACGGTGCCCAAGCCCTGCTGTGCGCCACGCAGCTCAATGCCATC
F I N P E T V P K P C C A P T Q L N A I
1270      1280      1290      1300      1310      1320
TCCGTCTCTACTTCGATGACAGCTCCAACGTCATCCTGAAGAAATACAGAAACATGGTG
S V L Y F D D S S N V I L K K Y R N M V
1330      1340      1350      1360      1370      1380
GTCCGGGCGCTGTGGCTGCCACTAGCTCCTCCGAGAATTTCAGACCCTTTGGGGCCAAGTTT
V R A C G C H *
1390      1400      1410      1420      1430      1440
TTCTGGATCCTCCATTGCTCGCCTTGGCCAGGAACCAGCAGACCAACTGCCTTTTGTGAG
1450      1460      1470      1480      1490      1500
ACCTTCCCCTCCCTATCCCCAACTTTAAAGGTGTGAGAGTATTAGGAAACATGAGCAGCA
1510      1520      1530      1540      1550      1560
TATGGCTTTTGTATCAGTTTTTTCAGTGGCAGCATCCAATGAACAAGATCCTACAAGCTGTG
1570      1580      1590      1600      1610      1620
CAGGCAAAACCTAGCAGGAAAAAACAACGCATAAAGAAAAATGGCCGGGCCAGGTCA
1630      1640      1650      1660      1670      1680
TTGGCTGGGAAGTCTCAGCCATGCACGGACTCGTTCCAGAGGTAATTATGAGCGCCTAC
1690      1700      1710      1720      1730      1740
CAGCCAGGCCACCCAGCCGTGGGAGGAAGGGGCGTGGCAAGGGGTGGGCACATTGGTGT
1750      1760      1770      1780      1790      1800
CTGTGCGAAAGGAAAATTGACCCGGAAGTTCCTGTAATAAATGTCACAATAAAACGAATG
1810      1820
AATGAAAAAAAAAAAAAAAAAAAA

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FIG. 1B-2 OP1 CDNA

FIGURE 1C

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      10      20      30      40      50      60
TCGACTCTAGAGTGTGTGTCAGCACTTGGCTGGGGACTTCTTGAACCTGCAGGGAGAATA
      70      80      90     100     110     120
ACTTGCGCACCCCACTTTGCGCCGGTGCCTTTGCCCCAGCGGAGCCTGCTTCGCCATCTC
      130     140     150     160     170     180
CGAGCCCCACCGCCCTCCACTCCTCGGCCTTGCCCCGACACTGAGACGCTGTTCCAGCG
      190     200     210     220     230     240
TGAAAAGAGAGACTGCGCGGCCGGCACCCGGGAGAAGGAGGAGGCAAAGAAAAGGAACGG
      250     260     270     280     290     300
ACATTTCGGTCCTTGCGCCAGGTCCTTTGACCAGAGTTTTTCCATGTGGACGCTCTTTCAA
      310     320     330     340     350     360
TGGACGTGTCCCCCGGTGCTTCTTAGACGGACTGCGGTCTCCTAAAGGTCGACCATGGTG
                                         M V
      370     380     390     400     410     420
GCCGGGACCCGCTGTCTTCTAGCGTTGCTGCTTCCCCAGGTCCTCCTGGCGCGCGCGGCT
      A G T R C L L A L L L P Q V L L G G A A
      430     440     450     460     470     480
GGCCTCGTTCCGGAGCTGGGCGCAGGAAGTTCGCGGCGGCGTCTCGGGCCGCCCCCTCA
      G L V P E L G R R K F A A S S G R P S
      490     500     510     520     530     540
TCCCAGCCCTCTGACGAGGTCTCTGAGCGAGTTCGAGTTGCGGCTGCTCAGCATGTTTCGGC
      S Q P S D E V L S E F E L R L L S M F G
      550     560     570     580     590     600
CTGAAACAGAGACCCACCCCAAGCAGGACGCCGTGGTGGCCCCCTACATGCTAGACCTG
      L K Q R P T P S R D A V V P P Y M L D L
      610     620     630     640     650     660
TATCGCAGGCACTCGGGTCAGCGGGCTCACCCGCCCCAGACCACCGGTTGGAGAGGGCA
      Y R R H S G Q P G S P A P D H R L E R A
      670     680     690     700     710     720
GCCAGCCGAGCCAACACTGTGCGCAGCTTCCACCATGAAGAATCTTTGGAAGAACTACCA
      A S R A N T V R S F H H E E S L E E L P
      730     740     750     760     770     780
GAAACGAGTGGGAAAACAACCCGGAGATTCTTCTTTAATTTAAGTCTATCCCCACGGAG
      E T S G K T T R R F F F N L S S I P T E
      790     800     810     820     830     840
GAGTTTATCACCTCAGCAGAGCTTCAGGTTTCCGAGAACAGATGCAAGATGCTTTAGGA
      E F I T S A E L Q V F R E Q M Q D A L G
      850     860     870     880     890     900
AACAATAGCAGTTTCCATCACCGAATTAATATTTATGAAATCATAAAACCTGCAACAGCC
      N N S S F H H R I N I Y E I I K P A T A
      910     920     930     940     950     960
AACTCGAAATTCCCCGTGACCACTCTTTTGGACACCAGGTTGGTGAATCAGAATGCAAGC
      N S K F P V T S L L D T R L V N Q N A S
      970     980     990     1000    1010    1020
AGGTGGGAAAGTTTGTATGTACCCCCGCTGTGATGCGGTGGACTGCACAGGGACACGCC
      R W E S F D V T P A V M R W T A Q G H A
      1030    1040    1050    1060    1070    1080
AACCATGGATTTCGTGGTGGAGTGGCCCACTTGGAGGAGAAACAAGGTGTCTCCAAGAGA
      N H G F V V E V A H L E E K Q G V S K R

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FIG. 2-1

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1090      1100      1110      1120      1130      1140
CATGTTAGGATAAGCAGGCTTTTGCACCAAGATGAACACAGCTGGTCACAGATAAGGCCA
H V R I S R S L H Q D E H S W S Q I R P
1150      1160      1170      1180      1190      1200
TTGCTAGTAACCTTTTGGCCATGATGGAAAAGGGCATCCTCTCCACAAAAGAGAAAAACGT
L L V T F G H D G K G H P L H K R E::K R
1210      1220      1230      1240      1250      1260
CAAGCCAAACACAAACAGCGGAAACGCCTTAAGTCCAGCTGTAAGAGACACCCCTTTGTAC
Q A K H K Q R K R L K S S C K R H P L Y
1270      1280      1290      1300      1310      1320
GTGGACTTCAGTGACGTGGGGTGGGAATGACTGGATTGTGGCTCCCCCGGGTATCACGCC
V D F S D V G W N D W I V A P P G Y H A
1330      1340      1350      1360      1370      1380
TTTTACTGCCACGGAGAATGCCCTTTTCTCTGGCTGATCATCTGAAGTCCACTAATCAT
F Y C H G E C P F P L A D H L N S T N H
1390      1400      1410      1420      1430      1440
GCCATTGTTTCAGACGTTGGTCAACTCTGTAACTCTAAGATTCCCTAAGGCATGCTGTGTC
A I V Q T L V N S V N S K I P K A C C V
1450      1460      1470      1480      1490      1500
CCGACAGAACTCAGTGCTATCTCGATGCTGTACCTTGACGAGAATGAAAAGGTTGTATTA
P T E L S A I S M L Y L D E N E K V V L
1510      1520      1530      1540      1550      1560
AAGAACTATCAGGACATGGTTGTGGAGGGTTGTGGGTGTCGCTAGTACAGCAAAATTAAA
K N Y Q D M V V E G C G C R *
1570      1580      1590
TACATAAATATATATATATATATATATTTTAGAAAAAAGAAAAAAA

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FIG. 2-2

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10      20      30      40      50      60
CTCTAGAGGGCAGAGGAGGGAGGGAGGGAGGGAAGGAGCGCGGAGCCCGGCCGGAAGCTA
70      80      90      100     110     120
GGTGAGTGTCGCATCCGAGCTGAGGGACGCGAGCCTGAGACGCCGCTGCTCCGGCTG
130     140     150     160     170     180
AGTATCTAGCTTGTCTCCCGATGGGATTCCCGTCCAAGCTATCTCGAGCCTGCAGCGCC
190     200     210     220     230     240
ACAGTCCCGGCCCTCGCCAGGTTCACTGCAACCGTTTCAGAGGTCCCGAGGAGCTGCTG
250     260     270     280     290     300
CTGGCGAGCCCGCTACTGCAGGGACCTATGGAGCCATTCCGTAAGTGCATCCCGAGCAAC
310     320     330     340     350     360
GCACTGCTGCAGCTTCCCTGAGCCTTTCCAGCAAGTTTGTTCAGATTGGCTGTCAAGAA
370     380     390     400     410     420
TCATGGACTGTTATTATATGCCTTGTCTTCTGTCAAGACACCATGATTCCTGGTAACCGA
                                     M I P G N R
430     440     450     460     470     480
ATGCTGATGGTCGTTTTATTATGCCAAGTCCTGCTAGGAGCGCGAGCCATGCTAGTTTG
M L M V V L L C Q V L L G G A S H A S L
490     500     510     520     530     540
ATACCTGAGACGGGGAAGAAAAAGTCGCCGAGATTTCAGGGCCACGCGGGAGGACGCCGC
I P E T G K K V A E I Q G H A G G R R
550     560     570     580     590     600
TCAGGGCAGAGCCATGAGCTCCTGCGGGACTTCGAGGCGACACTTCTGCAGATGTTTGGG
S G Q S H E L L R D F E A T L L Q M F G
610     620     630     640     650     660
CTGCGCCGCGCCCGCAGCCTAGCAAGAGTGCCGTCATTCCGGACTACATGCGGGATCTT
L R R R P Q P S K S A V I P D Y M R D L
670     680     690     700     710     720
TACCGGCTTCAGTCTGGGGAGGAGGAGGAGCAGATCCACAGCACTGGTCTTGTAGTAT
Y R L Q S G E E E E Q I H S T G L E Y
730     740     750     760     770     780
CCTGAGCGCCCGCCAGCCGGGCCAACACCGTGAGGAGCTTCCACCACGAAGAACATCTG
P E R P A S R A N T V R S F H H E E H L
790     800     810     820     830     840
GAGAACATCCAGGGACCAAGTGAAGTCTGCTTTTCGTTTCCTCTTTAACCTCAGCAGC
E N I P G T S E N S A F R F L F N L S S
850     860     870     880     890     900
ATCCCTGAGAACGAGGTGATCTCCTCTGCAGAGCTTCGGCTCTTCCGGGAGCAGGTGGAC
I P E N E V I S S A E L R L F R E Q V D
910     920     930     940     950     960
CAGGGCCCTGATTGGGAAAGGGGCTTCCACCGTATAAACATTTATGAGGTTATGAAGCCC
Q G P D W E R G F H R I N I Y E V M K P
970     980     990     1000    1010    1020
CCAGCAGAAGTGGTGCTGGGCACCTCATCACAGACTACTGGACACGAGACTGGTCCAC
P A E V V P G H L I T R L L D T R L V H
1030    1040    1050    1060    1070    1080
CACAATGTGACACGGTGGGAAACTTTTGATGTGAGCCCTGCGGTCTTCTGCTGGACCCGG
H N V T R W E T F D V S P A V L R W T R
1090    1100    1110    1120    1130    1140
GAGAAGCAGCCAACTATGGGCTAGCCATTGAGGTGACTCACCTCCATCAGACTCGGACC
E K Q P N Y G L A I E V T H L H Q T R T

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FIG. 3-1


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1150      1160      1170      1180      1190      1200
CACCAGGGCCAGCATGTCAGGATTAGCCGATCGTTACCTCAAGGGAGTGGGAATTGGGCC
H Q G Q H V R I S R S L P Q G S G N W A
1210      1220      1230      1240      1250      1260
CAGCTCCGGCCCCCTCCTGGTCACCTTTGGCCATGATGGCCGGGGCCATGCCTTGACCCGA
Q L R P L L V T F G H D G R G H A L T R
1270      1280      1290      1300      1310      1320
CGCCGGAGGGCCAAGCGTAGCCCTAAGCATCACTCACAGCGGGCCAGGAAGAATAAG
R R R A::K R S P K H H S Q R A R K K N K
1330      1340      1350      1360      1370      1380
AACTGCCGGCGCCACTCGCTCTATGTGGACTTCAGCGATGTGGGCTGGAATGACTGGATT
N C R R H S L Y V D F S D V G W N D W I
1390      1400      1410      1420      1430      1440
GTGGCCCCCACCAGGCTACCAGGCCTTCTACTGCCATGGGGACTGCCCTTTCCACTGGCT
V A P P G Y Q A F Y C H G D C P F P L A
1450      1460      1470      1480      1490      1500
GACCACCTCAACTCAACCAACCATGCCATTGTGCAGACCCTGGTCAATTCTGTCAATTCC
D H L N S T N H A I V Q T L V N S V N S
1510      1520      1530      1540      1550      1560
AGTATCCCCAAAGCCTGTTGTGTGCCCACTGAACTGAGTGCCATCTCCATGCTGTACCTG
S I P K A C C V P T E L S A I S M L Y L
1570      1580      1590      1600      1610      1620
GATGAGTATGATAAGGTGCTACTGAAAAATTATCAGGAGATGGTAGTAGAGGGATGTGGG
D E Y D K V V L K N Y Q E M V V E G C G
1630      1640      1650      1660      1670      1680
TGCCGCTGAGATCAGGCAGTCCTTGAGGATAGACAGATATACACACACACACACACAC
C R *
1690      1700      1710      1720      1730      1740
CACATACACCACACACACACGTTCCCATCCACTACCCACACACTACACAGACTGCTTCC
1750      1760      1770      1780      1790      1800
TTATAGATGGACTTTTATTTAAAAAATGGAATAATCCCTAAACATT
1810      1820      1830      1840      1850      1860
CACCTTGACCTTATTTATGACCTTACGTGCAAATGTTTTGACCATATTGATCATATATTT
1870      1880      1890      1900      1910      1920
TGACAAAATATATTTATAACTACGTATTAAAGAAAAAATAAAATGAGTCATTATTTTA
1930
AAAAAAAAAAAAAA
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FIG. 3-2